Notice of Allowability	Application No.	Applicant(s)	
	09/553,431	OSTERYOUNG, KATHERINE W.	
	Examiner	Art Unit	
	Anne R. Kubelik	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed 12/28/04*.

2. ☒ The allowed claim(s) is/are *1-8, 10, 14-28 and 30, renumbered 1-2, 7, 3-6, 16, 9-15, 17-20, 23-25, 21-22 and 8, respectively*.

3. ☒ The drawings filed on *4/19/00* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Nicholas Seay on 16 March 2005.

IN THE CLAIMS:

Claim 1 (Currently Amended). A transgenic plant comprising in its genome an artificial genetic construct comprising a ~~sense protein coding sequence and~~ a promoter which ~~promotes expression of the MinD protein coding sequence~~ functions in cells of the plant operatively linked to a nucleic acid that encodes a MinD protein, wherein: (a) the nucleic acid is in the sense orientation, (b) expression of the nucleic acid ~~sequence~~ in the plant causes alteration in the size, shape and/or number of plastids in plant cells of the plant as compared to non-transgenic plants of the species, and ~~(b)~~ (c) the MinD protein ~~encoded by the protein coding sequence~~ has at least 92% sequence identity ~~with~~ to SEQ ID NO:2.

Claim 2 (Currently Amended). The plant of Claim 1, wherein the ~~coding sequence is~~ nucleic acid encodes an Arabidopsis MinD protein ~~coding sequence~~.

Claim 3 (Currently Amended). A transgenic plant comprising in its genome an artificial genetic construct comprising a ~~sense protein coding sequence and a~~ promoter which functions ~~promotes expression of the MinD protein coding sequence~~ in cells of the plant operatively linked to a nucleic acid encoding a MinD protein, wherein the nucleic acid is in the sense orientation, wherein expression of the nucleic acid ~~sequence~~ in the plant causes alteration in the size, shape and/or number of plastids in plant cells of the plant as compared to non-transgenic plants of the species, and wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 4 (Currently Amended). The plant of Claim 1, wherein the ~~construct comprises in 5' to 3' order~~ the promoter is a CaMV 355 promoter~~, a MinD protein coding sequence,~~ and the construct further comprises an OCS terminator positioned 3' to the nucleic acid.

Claim 5 (Currently Amended). The plant of Claim 4, wherein the ~~coding sequence is~~ nucleic acid encodes an Arabidopsis MinD protein ~~coding sequence~~.

Claim 6 (Currently Amended). The plant of Claim 4, wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 7 (Original). The plant of Claim 1, wherein the plastids are chloroplasts.

Claim 8 (Currently Amended). An isolated DNA sequence comprising ~~the sequence of~~ SEQ ID NO:1.

Claim 10 (Currently Amended). ~~Seed~~ A seed of the plant of Claim 1, wherein the seed comprises ~~which carries~~ the artificial gene construct ~~in its genome~~.

Claim 14 (Currently Amended). A plant seed comprising in its genome a genetic construct comprising a promoter that functions in a plant operatively linked to a nucleic acid that encodes a MinD protein, wherein the ~~coding sequence and a~~ promoter[,] is not natively associated with the ~~MinD protein coding sequence~~ nucleic acid~~, which promotes expression of the MinD protein coding sequence in the plant~~, wherein : (a) expression of the ~~sequence~~ nucleic acid in the plant causes alteration in the size, shape and/or number of plastids in plant cells of the plant as compared to nontransgenic plants of the species, and (b) the MinD ~~gene encodes a~~ protein ~~having~~ has at least 92% sequence identity ~~with~~ to SEQ ID NO:2.

Claim 15 (Currently Amended). The plant seed of Claim 14, wherein the ~~coding sequence is~~ nucleic acid encodes an Arabidopsis MinD protein ~~coding sequence~~.

Claim 16 (Currently Amended). The plant seed of Claim 14, wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 17 (Currently Amended). The plant seed of Claim 14, wherein the ~~construct comprises in 5' to 3' order~~ the promoter is a CaMV 355 promoter~~, a MinD protein coding~~

~~sequence,~~ and the construct further comprises an OCS terminator positioned after the nucleic acid.

Claim 18 (Currently Amended). The plant seed of Claim 17, wherein the ~~coding sequence is~~ nucleic acid encodes an Arabidopsis MinD protein coding sequence.

Claim 19. (Currently aniended) The plant seed of Claim 17, wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 20. (Currently Amended) A genetic construct comprising a ~~MinD protein coding sequence~~ nucleic acid encoding a MinD protein in either a sense or antisense orientation ~~and~~ operatively linked to a promoter that promotes expression of the ~~sequence~~ nucleic acid in plants, wherein the promoter is not ~~being~~ natively associated with the ~~protein coding sequence~~ nucleic acid, and wherein the MinD ~~gene encoding a~~ protein ~~having~~ has at least a 92% sequence identity ~~with~~ to SEQ ID NO:2.

Claim 21 (Currently Amended). The construct of Claim 20, wherein the ~~MinD protein coding sequence is of~~ nucleic acid encodes an Arabidopsis MinD protein ~~coding sequence~~.

Claim 22 (Currently Amended). The construct of Claim 20, wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 23. (Original) The construct of Claim 20, wherein the promoter is a CaMV 355 promoter.

Claim 24. (Currently Amended) A method for altering the size, shape and/or number of plastids in plant cells, wherein the method comprises ~~comprising the steps of~~

constructing a genetic construct comprising promoter that is functional in plants operatively linked to a nucleic acid encoding a MinD protein ~~coding sequence and a promoter~~, wherein the promoter is not natively associated with the nucleic acid and wherein the MinD protein has at least 92% sequence identity to SEQ ID NO:2 ~~MinD protein coding sequence, which promotes expression of the MinD protein coding sequence in plants~~,

introducing the genetic construct into a plant,

selecting a plant that has received a copy of the genetic construct, and

growing the plant under conditions that allow expression of the ~~gene~~ nucleic acid, thereby producing a plant with altered size shape or number of plastids~~, the MinD gene encoding a protein having at least a 92% sequence identity with SEQ ID NO:2~~.

Claim 25 (Currently Amended). The method of Claim 24, wherein the ~~coding sequence is~~ nucleic acid encodes an Arabidopsis MinD protein ~~coding sequence~~.

Claim 26 (Currently Amended). The method of Claim 24, wherein the ~~coding sequence~~ nucleic acid is SEQ ID NO:1.

Claim 27. (Currently Amended) ~~A DNA sequence~~ An isolated ~~from its native genome~~, ~~the isolated DNA sequence~~ nucleic acid comprising a plant MinD gene, wherein the MinD gene encodes ~~encoding~~ a protein having at least a 92% sequence identity ~~with~~ to SEQ ID NO:2.

Claim 28 (Currently Amended). The ~~DNA sequence~~ nucleic acid of Claim 27, wherein the ~~DNA sequence~~ nucleic acid is SEQ ID NO:1.

Claim 30 (Currently Amended). A transgenic plant comprising in its genome an artificial genetic construct comprising promoter that is functional in plants operatively linked to a nucleic acid encoding a ~~sense protein coding sequence and a promoter which promotes expression of the~~ MinD protein ~~coding sequence in cells of the plant~~, wherein expression of the ~~sequence~~ nucleic acid in the plant causes alteration in the size, shape and/or number of plastids in plant cells of the plant as compared to non-transgenic plants of the species, wherein the ~~coding sequence encodes~~ ~~a~~ protein ~~having~~ has the amino acid sequence of SEQ ID NO:2.

IN THE TITLE:

MANIPULATION OF A MIN D GENES IN PLANTS TO ALTER PLASTID SIZE, SHAPE AND/OR NUMBER

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The central fax number for official correspondence is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.
March 17, 2005

ANNE KUBELIK, PH.D.
PRIMARY EXAMINER